

Attorney Docket No. 740756-2691

Application No. 10/743,337

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**IN THE CLAIMS:**

1. (Canceled)

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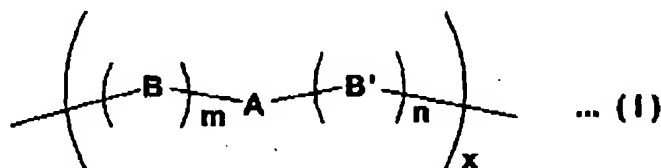
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2. (Currently Amended) An electroluminescent element comprising:

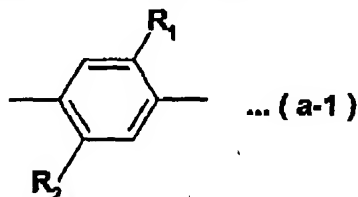
a first electrode;

a second electrode over the first electrode; and

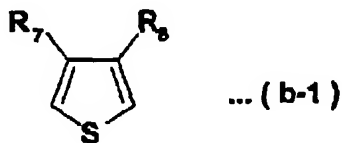
a layer interposed between the first electrode and the second electrode;

wherein the layer comprises an ammonium perchlorate and a polymer having the following general formula (I) as a repeating unit:

wherein the general formula (I), each of  $m$  and  $n$  is 1 or 2,  $x$  is a natural number larger than or equal to 2,  $A$  is  $(a-1)$ , and each of  $B$  and  $B'$  is identical, and is  $(b-1)$ ;



$R_1$  and  $R_2$  of  $(a-1)$  are identical, and each of  $R_1$  and  $R_2$  is an organic substituent that includes a sulfur atom or a nitrogen atom; and



$R_7$  and  $R_8$  of  $(b-1)$  are identical, and each of  $R_7$  and  $R_8$  is a phenyl group.

3. (Previously Presented) The electroluminescent element according to claim 2, wherein the layer is formed by electrolytic polymerization.

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4. (Currently Amended) A light-emitting device comprising a plurality of electroluminescent elements, wherein at least one of the plurality of electroluminescent elements comprises:

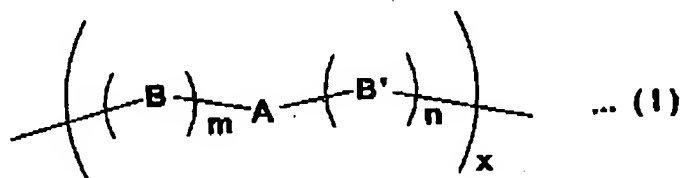
a first electrode;

a second electrode over the first electrode; and

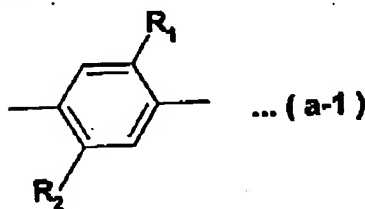
a first layer interposed between the first electrode and the second electrode;

wherein the first layer comprises an ammonium perchlorate and a first polymer

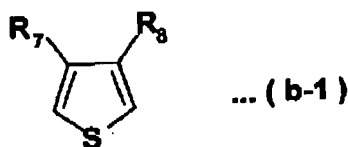
having the following general formula (I) as a repeating unit:



wherein the general formula (I), each of  $m$  and  $n$  is 1 or 2,  $x$  is a natural number larger than or equal to 2,  $A$  is (a-1), and each of  $B$  and  $B'$  is identical, and is (b-1);



$R_1$  and  $R_2$  of (a-1) are identical, and each of  $R_1$  and  $R_2$  is an organic substituent that includes a sulfur atom or a nitrogen atom; and



$R_7$  and  $R_8$  of (b-1) are identical, and each of  $R_7$  and  $R_8$  is a phenyl group.

5. (Previously Presented) The light-emitting device according to claim 4, wherein another one of the plurality of electroluminescent elements comprises:

a third electrode;

a fourth electrode over the third electrode; and

a second layer interposed between the third electrode and the fourth electrode;

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wherein the second layer comprises a second polymer having the general formula (I) as a repeating unit,

wherein the first polymer is different from the second polymer.

6. (Currently Amended) A light-emitting device comprising:

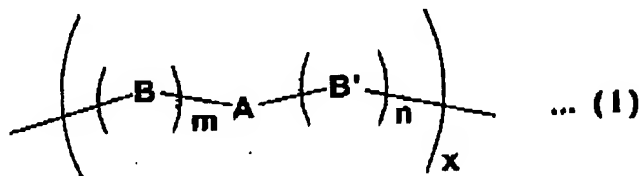
a substrate having an insulating surface;

a plurality of stripe-shaped first electrodes formed over the substrate;

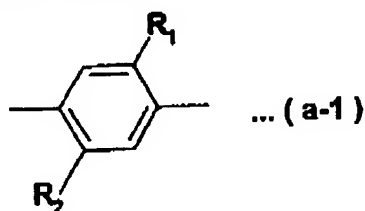
a plurality of stripe-shaped second electrodes arranged to be orthogonal to the plurality of first electrodes; and

a plurality of layers, wherein each of the plurality of layers is formed between a corresponding one of the plurality of first electrodes and a corresponding one of the plurality of second electrodes,

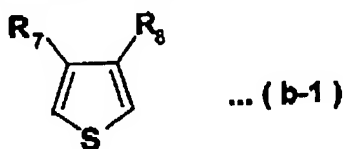
wherein at least one of the plurality of layers comprises an ammonium perchlorate and a first polymer having the following general formula (I) as a repeating unit:



wherein the general formula (I), each of m and n is 1 or 2, x is a natural number larger than or equal to 2, A is (a-1), and each of B and B' is identical, and is (b-1);



R<sub>1</sub> and R<sub>2</sub> of (a-1) are identical, and each of R<sub>1</sub> and R<sub>2</sub> is an organic substituent that includes a sulfur atom or a nitrogen atom; and



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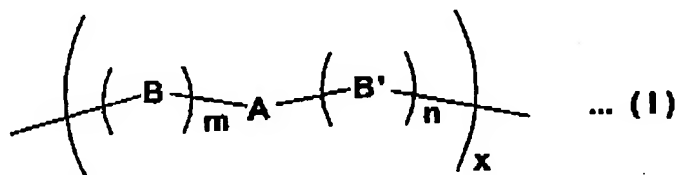
7. (Previously Presented) The light-emitting device according to claim 6, wherein another one of the plurality of layers comprises a second polymer having the general formula (I) as a repeating unit, and wherein the first polymer is different from the second polymer.

8. (Previously Presented) The light-emitting device according to claim 6, wherein the plurality of layers are formed by electrolytic polymerization.

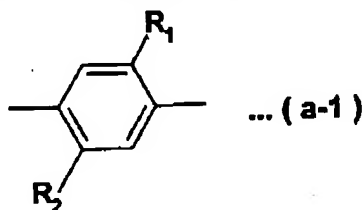
9. (Currently Amended) A light-emitting device comprising:

a substrate having an insulating surface;  
 a plurality of first electrodes formed over the substrate;  
 a plurality of second electrode electrodes over the plurality of first electrodes;  
 a plurality of layers, wherein each of the plurality of layers is formed between a corresponding one of the plurality of first electrodes and a corresponding one of the plurality of second electrode electrodes,

wherein at least one of the plurality of layers comprises an ammonium perchlorate and a first polymer having the following general formula (I) as a repeating unit:

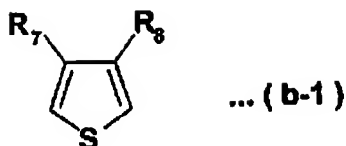


wherein the general formula (I), each of m and n is 1 or 2, x is a natural number larger than or equal to 2, A is (a-1), and each of B and B' is identical, and is (b-1);



R<sub>1</sub> and R<sub>2</sub> of (a-1) are identical, and each of R<sub>1</sub> and R<sub>2</sub> is an organic substituent that includes a sulfur atom or a nitrogen atom; and

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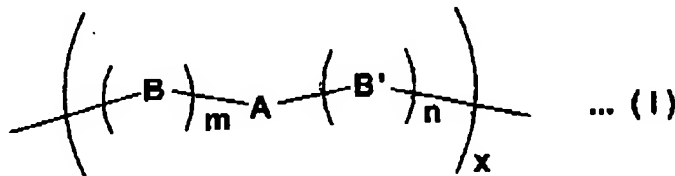


$R_7$  and  $R_8$  of (b-1) are identical, and each of  $R_7$  and  $R_8$  is a phenyl group.

10. (Previously Presented) The light-emitting device according to claim 9, wherein another one of the plurality of layers comprises a second polymer having the general formula (I) as a repeating unit, and wherein the first polymer is different from the second polymer.

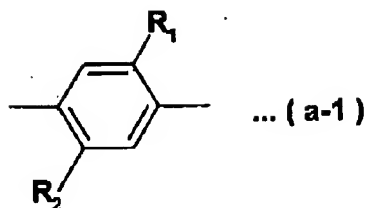
11. (Currently Amended) A light-emitting device comprising:

- a first electrode;
  - a second electrode;
  - a third electrode;
  - a fourth electrode over the first electrode, the second electrode and the third electrode;
  - a first layer comprising a first polymer, formed between the first electrode and fourth electrode;
  - a second layer comprising a second polymer, formed between the second electrode and fourth electrode; and
  - a third layer comprising a third polymer, formed between the third electrode and fourth electrode,
- wherein the first polymer, the second polymer and the third polymer emit light in different colors from each other,
- wherein each of the first polymer, the second polymer and the third polymer has the following general formula (I) as a repeating unit:

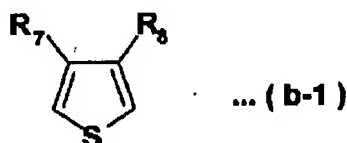


wherein the general formula (I), each of  $m$  and  $n$  is 1 or 2,  $x$  is a natural number larger than or equal to 2,  $A$  is (a-1), and each of  $B$  and  $B'$  is identical, and is (b-1);

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R<sub>1</sub> and R<sub>2</sub> of (a-1) are identical, and each of R<sub>1</sub> and R<sub>2</sub> is an organic substituent that includes a sulfur atom or a nitrogen atom; and



R<sub>7</sub> and R<sub>8</sub> of (b-1) are identical, and each of R<sub>7</sub> and R<sub>8</sub> is a phenyl group,  
wherein each of the first layer, the second layer and the third layer further comprises an ammonium perchlorate.

12. (Previously Presented) The light-emitting device according to claim 9, wherein the plurality of layers is formed by electrolytic polymerization.

13. (Previously Presented) The light-emitting device according to claim 6, further comprising a plurality of data signal lines, a plurality of scan signal lines, and a plurality of nonlinear elements,

wherein each of the plurality of nonlinear elements is connected to a corresponding one of the plurality of data signal lines and a corresponding one of the plurality of scan signal lines, and

wherein each of the plurality of first electrodes is electrically connected to a corresponding one of the plurality of nonlinear elements.

14. (Previously Presented) The light-emitting device according to claim 13, wherein each of the plurality of nonlinear elements comprises at least one thin film transistor.

15. (Canceled)

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16. (Canceled)

17. (Previously Presented) The light-emitting device according to claim 4, wherein the first layer is formed by electrolytic polymerization.

18. (Previously Presented) The light-emitting device according to claim 11, wherein the first layer, the second layer and the third layer are formed by electrolytic polymerization.

19. (Previously Presented) The light-emitting device according to claim 9, further comprising a plurality of data signal lines, a plurality of scan signal lines, and a plurality of nonlinear elements,

wherein each of the plurality of nonlinear elements is connected to a corresponding one of the plurality of data signal lines and a corresponding one of the plurality of scan signal lines, and

wherein each of the plurality of first electrodes is electrically connected to a corresponding one of the plurality of nonlinear elements.

20. (Previously Presented) The light-emitting device according to claim 11, further comprising a plurality of data signal lines, a plurality of scan signal lines, and a plurality of nonlinear elements,

wherein each of the plurality of nonlinear elements is connected to a corresponding one of the plurality of data signal lines and a corresponding one of the plurality of scan signal lines, and

wherein each of the plurality of first electrodes is electrically connected to a corresponding one of the plurality of nonlinear elements.

21-22. (Canceled)

23. (Previously Presented) The electroluminescent element according to Claim 2, wherein each of m and n is 2.

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24. (Previously Presented) The light-emitting device according to Claim 4, wherein each of m and n is 2.

25. (Previously Presented) The light-emitting device according to Claim 6, wherein each of m and n is 2.

26. (Previously Presented) The light-emitting device according to Claim 9, wherein each of m and n is 2.

27. (Previously Presented) The light-emitting device according to Claim 11, wherein each of m and n is 2.

28. (Currently Amended) The electroluminescent element according to Claim 2, wherein the first electrode is a three-layer structure of a titanium nitride film, a film including aluminum as its main component, and a titanium nitride film.

29. (Currently Amended) The light-emitting device according to Claim 4, wherein the first electrode is a three-layer structure of a titanium nitride film, a film including aluminum as its main component, and a titanium nitride film.

30. (Currently Amended) The light-emitting device according to Claim 6, wherein the plurality of first electrodes is a three-layer structure of a titanium nitride film, a film including aluminum as its main component, and a titanium nitride film.

31. (Currently Amended) The light-emitting device according to Claim 9, wherein the plurality of first electrodes is a three-layer structure of a titanium nitride film, a film including aluminum as its main component, and a titanium nitride film.

32. (Currently Amended) The light-emitting device according to Claim 11, wherein the first electrode, the second electrode and the third electrode are three-layer structures of a titanium nitride film, a film including aluminum as its main component, and a titanium nitride film.



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33. (Previously Presented) The electroluminescent element according to Claim 2, wherein the second electrode is a laminate of a metal and a transparent conductive film.

34. (Previously Presented) The light-emitting device according to Claim 4, wherein the second electrode is a laminate of a metal and a transparent conductive film.

35. (Previously Presented) The light-emitting device according to Claim 6, wherein the plurality of second electrodes is a laminate of a metal and a transparent conductive film.

36. (Previously Presented) The light-emitting device according to Claim 9, wherein the plurality of second electrodes is a laminate of a metal and a transparent conductive film.

37. (Previously Presented) The light-emitting device according to Claim 11, wherein the fourth electrode is a laminate of a metal and a transparent conductive film.

38. (Previously Presented) The electroluminescent element according to Claim 2, a second layer including a conductive polymer provided on the first electrode; and a third layer comprising an inorganic compound between the second electrode and the second layer.

39. (Previously Presented) The light-emitting device according to Claim 4, a second layer including a conductive polymer provided on the first electrode; and a third layer comprising an inorganic compound between the second electrode and the second layer.

40. (Previously Presented) The light-emitting device according to Claim 6, a plurality of second layers each of which including a conductive polymer, provided on corresponding one of the plurality of first electrodes; and a plurality of third layers each of which comprising an inorganic compound, between corresponding one of the plurality of second electrodes and corresponding one of the plurality of second layers.

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41. (Previously Presented) The light-emitting device according to Claim 9, a plurality of second layers each of which including a conductive polymer, provided on corresponding one of the plurality of first electrodes; and a plurality of third layers each of which comprising an inorganic compound, between corresponding one of the plurality of second electrodes and corresponding one of the plurality of second layers.

42. (Previously Presented) The light-emitting device according to Claim 11, a fourth layer including a conductive polymer provided on the first electrode; and a fifth layer comprising an inorganic compound between the second electrode and the fourth layer.

43. (Previously Presented) The electroluminescent element according to Claim 2, a charge injection layer provided in contact with the second electrode; and a buffer layer provided at an interface of the layer and the charge injection layer.

44. (Previously Presented) The light-emitting device according to Claim 4, a charge injection layer provided in contact with the second electrode; and a buffer layer provided at an interface of the layer and the charge injection layer.

45. (Previously Presented) The light-emitting device according to Claim 6, a plurality of charge injection layers each of which provided in contact with corresponding one of the plurality of second electrodes; and a plurality of buffer layers each of which provided at an interface of corresponding one of the plurality of layers and corresponding one of the plurality of charge injection layers.

46. (Previously Presented) The light-emitting device according to Claim 9, a plurality of charge injection layers each of which provided in contact with corresponding one of the plurality of second electrodes; and a plurality of buffer layers each of which provided at an interface of corresponding one of the plurality of layers and corresponding one of the plurality of charge injection layers.

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47. (Previously Presented) The light-emitting device according to Claim 11, a charge injection layer provided in contact with the fourth electrode; and a buffer layer provided at an interface of the first layer and the charge injection layer.

48. (Previously Presented) The electroluminescent element according to Claim 2, an insulator formed to cover an edge of the first electrode; wherein a positive photosensitive acrylic is used as a material of the insulator, and wherein a top portion of the insulator has a curved surface with a curvature radius 0.2  $\mu\text{m}$  to 3  $\mu\text{m}$ .

49. (Previously Presented) The light-emitting device according to Claim 4, an insulator formed to cover an edge of the first electrode; wherein a positive photosensitive acrylic is used as a material of the insulator, and wherein a top portion of the insulator has a curved surface with a curvature radius 0.2  $\mu\text{m}$  to 3  $\mu\text{m}$ .

50. (Previously Presented) The light-emitting device according to Claim 6, an insulator formed to cover edges of the plurality of first electrodes; wherein a positive photosensitive acrylic is used as a material of the insulator, and wherein a top portion of the insulator has a curved surface with a curvature radius 0.2  $\mu\text{m}$  to 3  $\mu\text{m}$ .

51. (Previously Presented) The light-emitting device according to Claim 9, an insulator formed to cover edges of the plurality of first electrodes; wherein a positive photosensitive acrylic is used as a material of the insulator, and wherein a top portion of the insulator has a curved surface with a curvature radius 0.2  $\mu\text{m}$  to 3  $\mu\text{m}$ .

52. (Previously Presented) The light-emitting device according to Claim 11, an insulator formed to cover edges of the first electrode, the second electrode and the third electrode; wherein a positive photosensitive acrylic is used as a material of the insulator, and wherein a top portion of the insulator has a curved surface with a curvature radius 0.2  $\mu\text{m}$  to 3  $\mu\text{m}$ .